Environmental Compliance Manual

Office of Environmental & Emergency Management

Room 364 Municipal South
215 Church Avenue
Roanoke, Virginia 24011

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1.0 INTRODUCTION

The City of Roanoke oversees many separate facilities and operations and is expected to satisfy a broad spectrum of citizens' environmental, operational, and social needs. State and Federal regulatory agencies are increasing compliance and enforcement scrutiny of municipal facilities. As a public sector entity, which ideally should be a role model for the community, the City found itself unprepared to address the complex environmental challenges that were confronting it as the City grew and prospered in the mid to late 1990s. As a result, Environmental Management Systems were, and continue to be designed and implemented at various City departments to assist employees in more efficiently managing the environmental needs of the City of Roanoke.

An Environmental Management System (EMS) is a powerful tool for addressing the large-scale complexities of operating and maintaining physical plants, power and water systems, and complex roadway systems. An EMS provides municipal governments with opportunities to serve as environmental mentors for their communities since they both regulate and are regulated. Entities that implement and maintain an EMS have a firsthand ability to share benefits, barriers, and lessons learned with their public and private sector colleagues. Consequently, there is a broader understanding of stakeholder concerns, a common language to discuss environmental issues, and an increase in non-adversarial performance partnerships between the regulator and the regulated communities.

Several motivating factors led the City to implement an Environmental Management System:

Compliance responsibilities: concerns for potential environmental problems after incidents of past enforcement acts by the regulatory authorities and prevention of further enforcement actions.

Management confidence: management wanted assurances that the City was adequately managing its environmental responsibilities and identifying opportunities for improvement.

Organizational factors: increased efficiency, attention to worker health and safety concerns, improved employee morale, and reduced operating costs for the City.

Public image concerns: improving strained relationships with neighbors and counteracting negative media relations.

Improving regulatory relationships: fostering a productive working relationship with representatives from state and Federal government.

Growth issues: in response to smart growth and sprawl issues, implementing an EMS is an incentive to attract the right type of industry and sends a message that the City has a strong environmental consciousness.

Risk avoidance and risk reduction approaches: to promote compliance and proactive initiatives instead of reacting to incidents of non-compliance

This manual is one part of the EMS adopted by the City of Roanoke to ensure continual compliance with all applicable Federal, state and local environmental rules and regulations. Although the manual is applicable to all City operating units, it has been prepared for use by the Public Works Service Center, Parks & Recreation Department, Department of General Services, and Roanoke Civic Center. City management has determined that these departments have more complex environmental management issues than other departments within the City, and therefore warrant a more structured environmental management approach.

Topics covered by this manual include: Solid & Hazardous Waste Management, Air Emissions, Waste Water, Materials Procurement & Usage, Regulatory Reporting, Regulatory Inspections, and Audits.

1.01 AVAILABILITY

Copies of this manual must be maintained at the following locations:

1. Public Works Service Center;
2. Parks & Recreation Headquarters;
3. Roanoke Civic Center;
4. Emergency Communications Center;
5. Police Department Headquarters;
6. Department of Fire/EMS headquarters;
7. Risk Management Office; and
8. Environmental Administrator's Office;

This manual is considered "document controlled."

Only the copies of this manual found at the listed locations are considered current and valid. The electronic copy of this manual is document controlled by environmental management software.

The Environmental Administrator is the only person authorized to make changes to this manual. When a change is made, the revision date is added to this manual. The Environmental Administrator keeps a revision log in his office.

A "controlled" copy of the manual can also be viewed at www.roanokegov.com, clicking on SEARCH Roanokegov.com and typing *environmental compliance manual* in the box provided.

2.0 APPLICABILITY

All supervisory and management personnel in the Public Works Service Center, the Parks and Recreation Department, the Department of General Services, the Roanoke Civic Center, the Office of Risk Management and the Office of Environmental and Emergency Management must read and comply with this manual. New supervisors and management personnel must read this manual within 10 days of reporting to work. Any employee below the level of supervisor and employed by any of the aforementioned seven departments and facilities shall be instructed and trained as to the contents of the manual. Such training shall include an oral presentation of the material contained in the relevant sections.

Environmental compliance has far reaching implications. No less than three titles of the Code of Federal Regulations address the use, transport, and disposal of materials related to day-to day operations of the City. The Virginia Department of Environmental Quality has adopted the Federal regulations almost verbatim and is responsible for monitoring and enforcing compliance in both the public and private sectors. The state's regulations may require additional consideration, but must be comparable or as stringent as the Federal requirements. Local codes are in place to regulate fire safety, land development and construction, and the discharges to both the storm water and sewer systems.

These regulations are enforceable and failure to comply with this Manual increases the likelihood of the offending City employee committing regulatory violations. Violations could lead to the employee and/or the City facing fines and possible civil and criminal prosecution. Therefore, it is very important that all instances of noncompliance be reported without fear of retribution and that each individual work to assure the overall environmental compliance of the community. A section entitled Reporting Noncompliance explains the procedures to report environmental problems.

Further, it should be understood that reporting is a requirement and a condition of employment; and the failure to properly report environmental problems will result in progressive disciplinary action up to and including termination. The complexity of the regulations makes it difficult to always know what acts are proper, but if there is any question seek advice.

2.01 REGULATORY OVERVIEW

This section provides a general overview of the applicable regulations. Given the close similarity to the state regulations, this overview is a general summary of the Federal standards. The discussion covers the most important titles of 29, 40, and 49. All three titles from the Code of Federal Regulations can be accessed on the Internet. An additional Internet site, Local Government Environmental Assistance Network, which is easy to navigate and provides specific information relating to local government, can be accessed at www.lgean.org

2.01.1 Title 29 - Labor

Code of Federal Regulation (CFR) Title 29-Labor established the Occupational Safety and Health Administration (OSHA). In addition to general worker safety, OSHA focuses on hazardous chemicals and the necessary training and awareness needed to work with materials in a safe and responsible way. An integral part is the Hazard Communication Standard more commonly known as OSHA Right-to-Know Law. It details an employer's responsibility to inform employees of the hazardous chemicals in the work place, and how they can recognize and identify the nature and hazardous characteristics of such chemicals. Two requirements are to prepare an inventory of all hazardous chemicals at a facility and maintain a readily available compilation of Material Safety Data Sheets (MSDS) that correspond with the aforementioned chemical inventory. Loose-leaf binders containing the inventory and MSDS shall be located in plain view of all departments.

2.01.2 Title 40 - Protection of Environment

Title 40-Protection of Environment, is more commonly known as the EPA Regulations. This system of Federal environmental laws emerged in the United States between the years 1970 and 1980. Some of the key provisions are as follows:

- **Resource Conservation & Recovery Act** – RCRA
  (40 CFR 260-271)
- **Toxic Substance Control Act** – TSCA
  (40 CFR 700 - 799)
- **Clean Air Act** – CAA
  (40 CFR 50 - 99)
- **Clean Water Act** – CWA
  (40 CFR 110)
- **Comprehensive Environmental Response, Compensation, and Liability Act** – CERCLA
  (40 CFR 302)

- **Superfund Amendments and Reauthorization Act** – SARA (40 CFR 350 - 372)
- **Federal Insecticide, Fungicide, and Rodenticide Act** - FIFRA (40 CFR 152 - 186)

The Resource Conservation and Recovery Act (RCRA) was passed in 1976 as an amendment to the Solid Waste Disposal Act of 1965. RCRA is one of the most complex and difficult to grasp regulations. Its scope is broad and its mandates for the EPA are far reaching. RCRA regulates both solid and hazardous wastes and its goal is to promote the protection of the health and environment, and conserve valuable material and energy resources. To achieve these goals, three distinct yet interrelated programs exist under RCRA:

- **Subtitle D** – The solid waste program promotes and encourages the environmentally sound management of solid wastes. It includes minimum federal technical standards and guidelines for solid waste plans.
- **Subtitle C** – The hazardous waste program establishes a management system that regulates hazardous waste from the time it is generated until its disposal, in effect, from cradle to grave.
- **Subtitle I** – The underground storage tank (UST) program regulates underground tanks that contain petroleum or hazardous substances.

An additional factor adding to the already complex nature of RCRA is the fact that it is continually being amended and changed. The Hazardous and Solid Waste Amendments of 1984 (HSWA) significantly expanded both the scope and detailed requirements of the Act, especially in the context of land disposal.

The Toxic Substance Control Act (TSCA), also passed in 1976, authorized the EPA to close the manufacturing loop by prohibiting the manufacture or use of chemicals that were found to pose an unreasonable risk. Two of the many materials that are regulated by the act are asbestos and polychlorinated biphenyls (PCB).

The Clean Air Act (CAA), passed in 1970, regulates stationary and mobile sources of air pollutants. It originally focused on a small number of widely encountered ambient air pollutants. Subsequent amendments, particularly those in 1990, have strengthened permit requirements and have extended them to include an increased number of sources and the controls over hazardous air pollutants.

A special program of the Act to reduce ozone-depleting substances requires special consideration while conducting vehicle or building air conditioning maintenance and repair. The production of fifteen kinds of chlorofluorocarbons and chloroform were phased out in 1996. Included in this list is the widely used refrigerant Freon 12.

The Clean Water Act (CWA), originally the Federal Water Pollution Control Act of 1972, had an initial focus on grants for building municipal wastewater treatment systems. Now it focuses on permitting discharges from specific point sources and is being used to address non-point sources of water pollution. The storm water system, which channels rainwater, is the most significant source of non-point pollution. Care and protection of the system to prevent the discharge of any substances other than rain is of the utmost importance.

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) was passed in 1980 due in large part to the public outcry over the discovery of Love Canal and the other waste disposal sites around the country. Often called Superfund, among its many features, the law established a fund to clean up abandoned hazardous waste sites posing problems to the environment and health.

The Superfund Amendments and Reauthorization Act (SARA), passed in 1986, contains the Emergency Planning and Community Right to Know Act. It focuses on disclosure of hazardous activities and cooperative planning with host communities to ensure that appropriate response actions are taken if a release occurs.

The Federal Insecticide, Fungicide, and Rodenticide Act – (FIFRA) is a comprehensive regulatory statute that addresses the sale, distribution, and labeling of pesticides, as well as the certification and training of pesticide applicators.

The primary purpose of FIFRA is to regulate the labeling and the subsequent use of pesticides. The labeling requirements include direction for use, warnings and cautions, along with the uses for which the pesticide is registered. The label also provides instructions for the specific conditions for application, mixture, storage and time periods for re-entry to areas following applications. The instructions are specific and must be adhered to. The use of restricted pesticides should be avoided because of their increased toxicity and more stringent record keeping and reporting requirements

2.01.3 Title 49 - Transportation

The United States Department of Transportation (DOT) is the agency responsible for regulating all modes of transportation into, through and out of the United States. The passage of the Hazardous Materials Transportation Act (HMTA) in 1974 gave the DOT the authority to “issue regulations for the safe transportation of hazardous materials in intrastate, interstate and foreign commerce … [that] shall govern any aspect of hazardous materials safety which the Secretary (of Transportation) deems necessary or appropriate.”

In 1992, the Research and Special Projects Administration of the DOT changed the US regulations in order to simplify and bring them into alignment with United Nations international standards. The original documents were given the docket number, HM-181 and this name has stuck and is commonly used to signify the DOT hazardous material regulations.

A result of this act and its subsequent modifications was the development of a system to define and identify "hazardous materials" during transport. Nine Hazard Classes and a table of Proper Shipping Names were developed to establish uniformity worldwide. This information is required on each storage container of a hazardous material not only while in transport but also while in accumulation and storage. The DOT also specifies the kind of container required for the various materials and the arrangement or segregation of substances in hazardous waste storage areas. At the time of transport, this information is also required on the shipping documentation (manifests) and the four sides of the transport vehicle.

All of these requirements are the responsibility of the shipper (waste generator) and more specifically the person signing the manifest. Due to the complexity of the regulations, transporters cannot always be relied upon to complete paperwork properly. DOT training is a legal requirement before any person can sign for the transport of hazardous waste and the training must be renewed every three years.

3.0 RESPONSIBILITY

Environmental stewardship and compliance with all applicable regulations and municipal policies is the responsibility of each City employee. A successful program requires training and implementing operational procedures that compliment the regulations and environmentally-recognized practices. Once procedures are established, each individual Department Manager is required to maintain adherence to established modes of operation. Assistance is available by the selection of and delegation to individuals described below, but overall responsibility remains with the Department Manager.

The Department Managers are accountable to an Assistant City Manager, or in some cases, directly to the City Manager. This distinction is due to the diversity of scope and size of the various departments. Direct responsibility for compliance with the environmental aspects of this manual is based on direct control of the specific aspects. Commitment to environmental success flows down from the City Manager and is detailed in the City's Environmental Policy.

The role of the Environmental Administrator is to assist in the identification of the environmental aspects and development of the proper procedures necessary for the individual departments. The Environmental Administrator's primary purpose is to advise and educate, and to encourage an open dialog concerning

environmental issues. Additionally, the Environmental Administrator is called upon for unusual situations or changes in operational practices. Environmental reporting and notifications to the applicable regulatory bodies is also the responsibility of the Environmental Administrator whether such reporting is done directly by the Environmental Administrator or in consultation with the Department Managers. The Environmental Administrator has the authority, granted by the Office of the City Manager, to suspend operations and terminate questionable practices.

Periodic and informal inspections by the Environmental Administrator provide access for first line employees to provide suggestions for improvements or expressions of concern. The Environmental Reporting Line is a telephone link that provides an anonymous and discreet means to report possible problems or concerns.

3.01 WASTE MANAGEMENT RESPONSIBILTIES

The delineation of specific responsibilities for solid and hazardous waste management is divided among employees as follows:

3.01.1 Department Managers

- Ultimately responsible for implementing the provisions of this manual and properly identifying and managing the Department's waste streams;
- Determine the constituents of waste streams;
- Determine the quantity of hazardous waste generated each month;
- Ensure that employees are effectively trained;
- Report all spills and chemical releases within the regulatory time frames; and;
- Promptly report any deviations from the solid and hazardous waste management procedures to the Environmental Administrator.

3.01.2 Supervisors

- Review existing materials and all new materials used in the area;
- Determine appropriate waste handling and disposal measures for the material with support from the Office of the Environmental Administrator;
- Promptly report any deviations from the solid and hazardous waste management procedures to the Department Manager or Environmental Administrator;
- Accomplish tasks delegated by the Department Manager;
- Ensure that wastes are being handled and disposed of according to approved practices on a day-to-day basis;

- Properly ship hazardous waste off-site if the Environmental Site Coordinator is unavailable; and
- Report all spills and chemical releases within the regulatory time frames.

3.01.3 Environmental Site Coordinators

- Act as overall Hazardous Waste Management Coordinator for the facility;
- Properly ship hazardous waste off-site;
- Ensure that any hazardous waste accumulation area is managed properly;
- Monitor hazardous waste activities at the site;
- Receive and maintain copies of all hazardous waste manifests and Land Disposal Restrictions (LDRs); and
- Assist in conducting site-specific training.

3.01.4 Employees

- Responsible for understanding and using the information provided to them in performing job duties that involve generating or handling waste materials;
- Responsible for notifying the immediate supervisor if they believe unacceptable waste management practices (deviations from solid and hazardous waste management procedures) are taking place; and
- Responsible for asking for help from the Supervisor or Environmental Site Coordinator if unsure of the appropriate method for handling waste materials.

3.01.5 Environmental Administrator

- Advises Department Managers, Supervisors, and Environmental Site Coordinators on waste management issues;
- Provides support during the development of waste management practices;
- Responsible for finalizing approval of waste management practices prior to implementing;
- Promptly making all required reports to the applicable regulatory agencies;
- Assists in training employees;
- Maintains regulatory reference materials;
- Arranges for the characterization of waste streams, which includes analytical testing;
- Procures waste disposal services.

3.02 AIR EMMISSIONS RESPONSIBILTY

The delineation of specific responsibilities for air emissions is divided among employees as follows:

3.02.1 Department Managers

- Ensure compliance with Federal & State Air Emissions regulations;
- Notify the Environmental Administrator prior to initiating the design and construction of any new facility modification or relocation of any fixed source of air emissions;
- Ensure that all employees are effectively trained; and
- Report any deviations from permit or other air regulatory requirements to the Environmental Administrator immediately upon discovery.

3.02.2 Supervisors

- Ensure that all equipment in their area is maintained in proper working order and that all emissions control devices are functioning properly;
- Ensure that their area adheres to all air permit requirements;
- Ensure that their employees are trained properly;
- Immediately report any deviations from permit or other regulatory requirements to the Department Manager or Environmental Administrator;
- Responsible for duties delegated by the Department Manager;
- Ensure that all emissions control devices on equipment used by employees under their direction are maintained and function properly;
- Immediately report any problems that may cause excess air emissions to the Superintendent; and
- Ensure that employees obtain the required training.

3.02.3 Employees

- Responsible for understanding and complying with procedural and permit requirements, asking help from a supervisor or fellow employee if unclear about the proper course of action; and
- Immediately notify Supervisor if equipment emissions control devices are not working properly.

3.02.4 Environmental Administrator

- Ensures that all sources are classified properly;
- Ensures that all permits are obtained in a timely manner;
- Assists facilities in determining whether or not an air permit is required;

- Maintains list of calculations used to determine maximum controlled and uncontrolled emissions for each source;
- Completes permit applications for facilities and forwards the application to legal counsel for review prior to submitting to Virginia Department of Environmental Quality;
- Maintains copies of all air permits;
- Identifies all regulatory air requirements that affect or potentially affect the City;
- Assists Departments in developing and implementing written programs to facilitate compliance with Clean Air Act requirements;
- Promptly makes all required reports to the applicable regulatory agencies.

4.0 TRAINING

The success of an Environmental Management System is based in the knowledge and awareness of its participants. Training, both formalized and on the job, is the means to educate employees as to the environmental aspects and procedures to effectively maintain compliance. This concept is recognized by all three regulating agencies. The EPA, DOT, and OSHA all mandate training based on an employee's job function and level of involvement with hazardous materials.

At a minimum all employees must be familiar with the contents of this manual and be given an oral presentation to ensure a proper understanding. In addition, all personnel, whether having hazardous materials contact or not, must be able to respond effectively to an emergency by being familiar with emergency procedures, emergency equipment, and emergency systems. For example, office personnel should receive training on alarm activation and evacuation drills. This information is required to be reviewed on an annual basis as a means to refresh and update each employee to possible changes in the facility procedures and the regulations.

For employees who are involved with or are occupationally exposed to hazardous waste, more extensive training is required. At facilities generating more than 220 pounds of hazardous waste per month, this training may include persons who perform the following tasks:

1) Determines which wastes are hazardous;
2) Adds hazardous waste into accumulation containers;
3) Removes hazardous waste from accumulation area;
4) Transports hazardous waste to or from accumulation points;
5) Responds to spills, fires, or explosions involving hazardous waste;
6) Completes or signs hazardous waste manifests;
7) Inspects hazardous waste accumulation points;
8) Conducts any task involving occupational exposure to, or which requires management of, hazardous wastes;

Training must be tailored to the operating facility, and the program must be in writing and available for review. The written program must contain three fundamental elements:

1) Job title for each position at the facility related to hazardous waste management.

2) Job description for each job title or position and a list of the most common job duties related to waste management;

3) Description of the type and amount of both introductory and continuing training that will be provided for each position.

The Environmental Administrator assists the Department Manager in the development of each training program and provides training in accordance with the plan. New employees must be trained within the first three months of hire. The training of each employee must be documented and filed. Training files should be maintained on each employee while in the employ of the City and three years beyond the employee's termination.

5.0 WASTE MANAGEMENT

Non-hazardous and hazardous wastes are generated as a result of the services that are provided by the City. Minimizing the amount of waste generated is a primary goal; however, due to the nature of services provided by the various departments, the generation of wastes is inevitable. It is important that managers, supervisors and employees that handle or generate waste have a fundamental understanding of non-hazardous and hazardous wastes and what differentiates the two.

From a regulatory perspective, the term, solid waste, is very broad and includes solids, liquids, or even gaseous materials that are intended for disposal. It encompasses not only the traditional non-hazardous solid wastes, such as office waste, garbage, spent vehicle tires, and yard waste, but also the hazardous wastes. Both are regulated under RCRA with specific subtitles of Title 40, Protection of Environment devoted to each. Subtitle D and Subtitle C address the non-hazardous and hazardous wastes respectively. For the purposes of this manual and for the sake of clarity with traditional municipal terminology, solid wastes shall be considered non-hazardous.

In an effort to foster environmentally sound recycling and conservation of resources, certain categories or types of waste have been given more lenient regulatory consideration. These materials exhibit characteristics of hazardous wastes but handling and tracking requirements have been modified to enable and provide incentives for reuse. Two commonly recycled waste streams, used oil and universal wastes, and their management are discussed below.

5.01 SOLID WASTE MANAGEMENT

The City of Roanoke is responsible for managing solid waste created by households and businesses within the community. Proper management of solid waste is critical to public health, as well as to the aesthetics of a community. Solid wastes are defined as:

Durable Goods - appliances, tires, batteries;
Non-durable Goods – newspapers, books, magazines;
Refuse – scrap metal, construction debris, empty containers and packaging;
Yard Trimmings – leaves, cut grass and foliage, and branches up to three inches in diameter;
Garbage – food wastes, small containers and packaging, and household items not conducive to recycling;
Sludges – solids from wastewater treatment plants and water supply treatment plants.

To address the increasing volumes of solid waste generated on a daily basis, three principles should always be considered and encouraged. The principles are source reduction, recycling and landfilling. The hierarchy favors source reduction to reduce both the volume and toxicity of waste and to increase the useful life of manufactured products. Next preferred is recycling, including composting of yard and food wastes because it diverts wastes from landfills. There will always be materials that will require landfilling and it is the most widely used waste management method.

The City transports all landfill materials to the Roanoke Valley Resource Authority's transfer facility for transport via rail to the regionally operated Smith Gap Landfill. Both household materials for recycling and vegetative waste are transported to third party handlers and therefore not accumulated by the City.

5.01.1 Determination of Solid Waste

It is the Department Manager's responsibility to ensure that solid wastes generated by their Department are being managed properly. In many cases the determination is obvious because the material is no longer usable; however this distinction is blurred when pieces and scraps are accumulated for either reuse or recycling. Materials that are not intended for disposal but are abandoned or "inherently waste-like" are also considered solid waste.

5.01.2 Collection & Storage of Solid Waste

Solid waste management begins with the collection and storage of solid waste. Collection involves picking up the waste at curbside or from the alley. Most activities undertaken during collection are not regulated by any particular environmental statute, however some general standards apply. When conducting carryout collection, a leak-proof and puncture-proof carrying container should be used to minimize the potential for physical contact between the collector and the solid waste or the liquids. Scavenging is prohibited at all times to avoid injury and to prevent interference with collection operations.

Collection workers are advised to seek assistance from their supervisors upon encountering unusual materials or chemical odors. The supervisor and possibly the Environmental Administrator will investigate these instances. Chemical, radioactive and biologically hazardous materials are prohibited from conventional solid waste collection and storage.

Storage is maintaining the waste at a proper location or in containers prior to recycling. Housekeeping and orderly arrangement of materials are key to properly storing used materials. Raw metal items must be stored in covered containers or under roof to prevent the release of metal oxides. Materials for recycling, such as scrap metal, must be rotated at least annually. Improper storage is considered disposal and triggers more stringent regulations of the waste.

Excavation spoils, concrete rubble and other bulk material are prohibited from storage, however there is one exception. Provisions have been established for the placement of inert fill provided such fill meets the definition. Inert fill is defined as material that is physically, chemically, and biologically stable from further degradation and is considered to be nonreactive. In addition to clean soil, inert fill includes rubble, concrete, bricks, and blocks, however organic material such

as leaves and paper, and metals such as pipe and imbedded rebar are not permissible.

5.02 HAZARDOUS WASTE MANAGEMENT

In essence, a solid waste can become a hazardous waste by virtue of any one of the following conditions:

- Exhibiting one or more of the four characteristics of a hazardous waste –
  Ignitability – 40 CFR 261.21
  Corrosivity – 40 CFR 261.22
  Reactivity – 40 CFR 261.23
  Toxicity – 40 CFR 261.24

- Being on one of four lists of hazardous wastes –
  F-Listed - 40 CFR 261.31, non-specific sources
  K-Listed - 40 CFR 261.32, specific sources
  P-Listed - 40 CFR 261.33(e), acutely toxic commercial chemical products
  U-Listed - 40 CFR 261.33(f), toxic commercial chemical products

- Being a mixture of a solid waste and a hazardous waste that either is a characteristic waste or included on one of the lists

- Being derived from treatment, storage or disposal of a hazardous waste that either is a characteristic waste or included on one of the lists

A more in depth discussion of the lists and characteristics is presented below. Plus there are exclusions and exemptions, primarily to promote reuse and recycling, to be considered. Information is also provided to address these issues.

5.02.1 Determination of Hazardous Waste

It is the Department Manager's responsibility to ensure that wastes generated by their Department are being managed properly. All generators are required to test or apply knowledge to determine if the wastes are hazardous. The waste determination process must be documented using a profile of waste stream data. Analytical testing and documentation of the hazardous characteristics of the department's products must be maintained for each waste stream. Additionally, the quantity and disposal method of wastes generated must be recorded and retained. The weight of all hazardous wastes generated in a particular month determines how a facility is regulated and the associated requirements necessary.

The Environmental Administrator is responsible for providing technical support, including characterizing the waste streams, for the Department Manager. The Environmental Administrator is also responsible for fully supporting the Department Manager in carrying out the following duties:

1. Review the Material Safety Data Sheet (MSDS) for each substance present in the Manager's department to determine the presence or absence of hazardous constituents, or other materials that constitute regulated wastes. Also, review new chemical MSDS prior to procurement by the department.
2. Review the use of each substance present in the department and determine the approximate monthly quantity of waste generated associated with the substance's use.
3. Based on the MSDS and quantities generated, determine the appropriate method of disposal for each waste stream.
4. Submit a waste disposal policy to the Environmental Administrator for approval. Do not dispose of wastes associated with this material until approval from the Environmental Administrator is received.
5. Upon approval of the waste disposal method, inform each supervisor of the appropriate waste handling procedures. Supervisors are responsible for informing appropriate employees of waste handling and disposal practices. Employees are responsible for following these practices at all times.
6. Update the waste stream inventory and maintain a file copy of the approved waste determination.

In no case may a hazardous waste be diluted with water or neutralized (treatment activities) prior to shipping off-site to a licensed treatment, storage and disposal facility. Such treatment activities are considered illegal "hazardous waste treatment," which can result in fines and both civil and criminal prosecution.

5.02.2 Categories of Hazardous Wastes

Listed Hazardous Wastes - Listed hazardous wastes originate from three types of sources:

- **Non-Specific Source** - hazardous wastes which contain certain compounds and are generated from any type of industrial, municipal, or service facility. They are always hazardous regardless of source. Typical wastes in this category are spent chlorinated and flammable solvents and sludges, and baths from plating and heat-treating operations. These wastes have an EPA Waste Code

that begins with the letter "F."

- **Specific Source** - hazardous wastes generated by specific industry types such as inorganic pigments, organic and inorganic chemicals, pesticides, and iron and steel manufacturing. These wastes have an EPA Waste Code that begins with the letter "K."
- **Discarded Commercial Chemical Products Off Specification Species, Containers, and Spill Residues** - includes two lists of several hundred chemicals that are hazardous or acutely hazardous when spent, spilled or slated for disposal. These listed chemicals must be the sole active ingredient of a solution or product for the listing to apply. The EPA Waste Codes begin with "P" & "U" for acutely hazardous and hazardous respectively. P-listed wastes have important regulatory implications.

Characteristic Hazardous Wastes - Four types of tests are used to determine whether a non-listed waste is hazardous

- **Ignitable** - liquids with a flash point less than 60°C (140°F) or are liquids, solids, or gases that are oxidizers or capable of causing a fire. Paint thinner, gasoline, brake cleaner and used gasoline filters are examples of ignitable wastes (EPA Waste Code - D001)

- **Corrosive** - liquids with a pH less than or equal to 2 or greater than or equal to 12.5 or which corrode steel at a rate greater than 6.35 mm per year. (EPA Waste Code - D002)

- **Reactive** - wastes exhibit any of the following properties:
  1) Is normally unstable and undergoes violent changes without detonation.
  2) Reacts violently with water.
  3) It forms potentially explosive mixtures with water.
  4) Generates toxic gases, vapors, or fumes when mixed with water.
  5) Is a cyanide or sulfide bearing waste that when exposed to pH conditions between 2 and 12.5 can generate toxic gases or fumes (EPA Waste Code – D003).

- **Toxicity** - wastes that contain leachable concentrations of any of eight metals, four insecticides, two herbicides or 26 organic toxic constituents. A leaching procedure, Toxicity Characteristic Leaching Procedure (TCLP) is used to extract the compounds for analysis. The test simulates improper land disposal and the leaching corresponds to the material's ability to migrate downward through soil. Hence, it is a characteristic of the waste and not necessarily concentration based. The materials and the regulated

limits are listed in Table 7, TCLP Chemicals. (EPA Waste Codes – D004 thru D043)

5.02.3 Collection of Hazardous Waste

Each department must obtain proper containers for their hazardous waste. Containers must be in good condition with a readable DOT specification marking of UN1A2 affixed to the upper portion of the drum. Certain waste materials such as acids and caustics require a plastic or polyethylene drum. Highly flammable materials may require fixed (tight head) tops. If there is a question, consult the DOT Hazardous Materials Table (49 CFR 172.101) or seek clarification from the Environmental Administrator.

Non-hazardous waste and hazardous waste shall never be mixed. If mixed, the resulting quantity is considered hazardous waste even if it no longer displays hazardous characteristics. For example, one gallon of acid (pH less than 2.0) mixed with one gallon of water yields 2 gallons of hazardous waste, regardless of the resulting pH.

Containers holding hazardous wastes must always be closed during storage. The only time containers can be opened during storage is to add or remove waste. "Closed" is interpreted to mean bungs in place and tight; and with open heads the ring and bolt closure secured tightly. For open-head drums, lever-ring type closures can be used in accumulation areas.

Container Conditions – the following is a list of considerations for all containers placed in approved storage area:

1) For flammable liquids, allow 3-5 inches of headspace from liquid surface to drum top to allow for thermal liquid expansion
2) Tops and sides of drums must be clean, dry and free of old markings
3) Removable bungs must be in place and tight when waste is not being transferred
4) Open top drums must have gasketed tops, tight bolt rings, and 5/8 inch bolts turned down
5) No dents in drum rim
6) No leaks
7) Proper liners in place (only if liners are specified)
8) Proper gaskets

9) No bulged top or bottom; and

10) No large dents or creases.

Accumulation Start Date – the accumulation start date is the date which hazardous waste is first placed in the container to fill it. The sole exception is for any container being filled in areas qualifying as satellite accumulation areas (see discussion below). The date is to be marked clearly on each container and must be visible for inspection. A place to indicate the start date is provided on the yellow hazardous waste label.

Labeling

- **Hazardous Waste Label** - completed yellow label, marked in clearly readable permanent ink and including:
  1) DOT Proper Shipping Name and primary hazardous constituent
  2) DOT Identification Number
  3) Name and Address of the Generating Facility,
  4) EPA Identification Number
  5) EPA Waste Code(s)
  6) Manifest Document Number, and
  7) Hazardous Waste Warning (specified in 40 CFR 262.32)

- **DOT Markings and Labeling** – the selected Proper Shipping Name has an associated and specific hazard class. Each hazard class has a designated label, which must be placed on each drum. Additional markings may also be required and are identified in the DOT Hazardous Material Table.

The employee who obtains the hazardous waste container is responsible at the outset for correctly and clearly labeling. The verification of complete and correct labeling should be a part of the weekly inspection. Labels get damaged through handling; however unreadable labels and markings are in violation no matter what the cause. Each supervisor is ultimately responsible for ensuring that all containers are handled and labeled correctly. The Environmental Administrator will provide each department with the proper waste codes and labeling requirements for each new stream.

5.02.4 Storage of Hazardous Waste

Each facility maintains a secure hazardous waste accumulation area. The allowable time that a hazardous waste can be stored in the accumulation area is based upon the generator classification of the facility. Generator classifications are based on the quantity of waste generated in a month. This is not a monthly average and limits must be observed for each and every month. Facilities that generate hazardous waste are classified as:

- **Large Quantity Generators** (LQG)
  - Greater than 2,200 lb per calendar month
  - Greater than 2.2 lbs of acutely hazardous waste (P-listed) per calendar month
  - 90-day storage limitation

- **Small Quantity Generators** (SQG) or
  - Between 220 lb and 2,200 lbs of hazardous waste per calendar month
  - Less than 2.2 lbs of acutely hazardous waste (P-listed) per calendar month
  - Total accumulation to less than 13,200 lbs waste, 2.2 lbs acute
  - 180-day storage limitation from accumulation start date

- **Conditionally Exempt Small Quantity Generators** (CESQG).
  - Less than 220 lbs of hazardous waste per calendar month
  - Less than 2.2 lbs of acutely hazardous waste (P-listed) per calendar month
  - Total accumulation to less than 2,200 lbs waste, 2.2 lbs acute
  - No time limit on storage

The Environmental Administrator will make the determination of the appropriate storage time for each department based on the amount and type of hazardous waste generated each month. There are two types of storage areas with unique purposes, "satellite" and "permit exempt accumulation areas." Both are discussed in detail in the following sections.

Satellite Accumulation Areas

Each distinct process of a Department may accumulate up to 55 gallons of hazardous waste in a Satellite Accumulation Area. A Satellite Accumulation Area is simply a location near the generation of hazardous waste where accumulation, without a time limit, is allowed until 55 gallons is accumulated. Satellite Accumulation Areas must be managed as follows:

1) The areas must be identified as Satellite Accumulation areas
2) The drum must be labeled with a completed hazardous waste label, but without the Accumulation Start Date completed. That date is filled in when the drum is full.

3) The drum must be closed at all times, except during transfers of waste to and from the drum (bolts tight and/or bung closure tight)
4) A spill kit must be available and identified as such
5) The drum must be near the point where the waste was generated and under the control of the person operating the process that generated the waste. Waste generated from vehicles, can be collected in an area in the department. Check with the Environmental Administrator before designating such an area.

Each department shall designate and document their respective Satellite Accumulation Areas.

Hazardous Waste Accumulation Areas

Once a drum in a Satellite Accumulation Area becomes full, the person designated by management shall mark the drum with the accumulation start date and move it to a Hazardous Waste Accumulation Area to await collection by a licensed transporter. Large Quantity Generators (LQG) may accumulate their waste for up to 90-days without a permit. Small Quantity Generators (SQG) may accumulate their waste for up to 180-days without a permit.

Accumulation areas are locked at all times, and access may be obtained only upon a Supervisor's authority. The criteria below must be met at all times in Hazardous Waste Accumulation Areas. It is the responsibility of the Supervisor and the employees placing wastes in the accumulation area to ensure that the following criteria are met:

1) Containers must be segregated in accordance with DOT compatibility requirements;
2) All containers must be in good condition and in accordance with DOT specifications for the type of waste;
3) Accumulation start dates must be clearly visible on each container;
4) Labels and markings must be complete and accurate;
5) All containers are sealed and securely closed;
6) The area is diked, a portable sump is used to contain any leaks/spills or a specialized containment pallet is used;
7) Appropriate equipment to respond to spills or leaks is available

at the accumulation building;

8) Non-hazardous wastes are not mixed with hazardous waste;

9) Large quantity generators may not accumulate hazardous waste for more than 90 days.

5.02.5 Inspections of Hazardous Waste Accumulation Areas

The shift supervisors or an employee designated by the shift supervisor will perform weekly inspections of each waste management area including all Satellite Accumulation Areas and Hazardous Waste Accumulation Areas. The inspections will be documented using inspection forms supplied by the Environmental Administrator. Performing these inspections will ensure, as a minimum, the following:

1) Containers are in good condition (no leaks or corrosion problems);

2) Containers are labeled properly;

3) Containers are closed at all times except when transfers are occurring;

4) Satellite Accumulation and Hazardous Waste Accumulation Areas are labeled as such;

5) Housekeeping is in good order;

6) Spill response equipment is available and in good condition;

7) Other emergency equipment, such as fire extinguishers and fire hoses are inspected and ready for use;

8) Secondary containment sumps are free of liquids and in good condition;

9) Corrective action is taken in response to deficiencies noted.

Completed Inspection Reports are stored in the shift supervisor's office. All corrective action or remediation of deficiencies must be noted on inspection forms. Copies shall be readily available to the Environmental Administrator for their review.

5.02.6 Transport and Disposal of Hazardous Waste

The offsite shipment of hazardous waste is the best example of the co-mingling of the regulatory programs of the DOT with that of the EPA under RCRA. The EPA regulations for generators (40 CFR 263) make frequent references to the DOT Hazardous Material Regulations (49 CFR 171 –180). In fact, the EPA standards for offsite shipment of waste are indecipherable without a copy of the

DOT regulations. The complexity of this situation is recognized by both agencies and there is mandatory training, commonly referred to as HAZMAT, before individuals are permitted to inspect and certify waste shipments. The bare bones of the process are as follows.

- **Generator Requirements:**
  1) Selects disposal facility and verifies that all applicable permits and their EPA identification number are being maintained;
  2) Selects transporter and verifies permits and EPA Identification number;
  3) Describes the waste using DOT shipping description and EPA codes and requirements;
  4) Ensures that the containers are marked, labeled in accordance with both the EPA and DOT;
  5) Ensures that the containers are in good condition and in accordance with DOT specifications;
  6) Signs and ensures that the transporter signs the Uniform Hazardous Waste Manifest;
  7) Signs and ensures that the transporter signs the Land Disposal Restriction Notices;
  8) Ensures that the transporter is placarded;
  9) Verifies that the waste is actually received by the disposal facility, and files appropriate notice if unconfirmed;
  10) Retains records of waste shipments in accordance with the EPA.

The Environmental Administrator will provide each facility with all necessary information required to ship the waste including the type of container required and labeling information on the waste streams collectively identified by the Department Manager and Environmental Administrator. The Department Manager is ultimately responsible for all wastes shipped from the facility.

Procurement

Solid and hazardous waste disposal is contracted out on an as-needed basis, in accordance with City procurement procedures, through the Office of the Environmental Administrator and Purchasing Department.

Prior to the selection of any waste disposal contractor, the Environmental Administrator will do the following:

1) Review the disposal contractor's facility Transport, Storage and Disposal (TSD) Permit and all other required permits;

2) Visit the waste disposal facility and review their operations (audit);
3) Review history of regulatory violations;
4) Review training program for TSD employees;
5) Identify all facilities that will receive waste.

The Department Manager is responsible for notifying the Environmental Administrator if any hazardous waste's accumulation time has passed 75 days or if a hazardous waste transporter is more than 5 days late. Department Managers can receive a list of approved waste transporters/disposal contractors from the Environmental Administrator.

Upon arrival at the facility, hazardous waste transporters must contact a supervisor to obtain access to the hazardous waste accumulation area. The supervisor, or his designee, will observe all waste loading activities.

Manifests

A Uniform Hazardous Waste Manifest must accompany all hazardous wastes transported off-site. Manifest documents must be completed and a copy retained by the supervisor or other authorized personnel who have received the proper training prior to the transporter leaving the facility with the waste. It is the supervisor's responsibility to place a copy of the manifest in the area file, and forward the original manifest form to the Environmental Site Coordinator. In some cases, the supervisor may fulfill the role as Environmental Site Coordinator. The generator (authorized employee signing) and the transporter (truck driver) must sign the manifest before the shipment leaves the facility.

The Department Manager is responsible to monitor whether a signed (handwritten signature) and dated copy of the manifest is returned to the generator within 30 days from the date the waste shipment is received by the treatment, storage and disposal facility (TSD). If the signed copy of the manifest is not returned to the City within 35 days of the date of shipment, the Environmental Administrator should be advised and a call will be made to the transporter and/or TSD facility to ascertain the status of the shipment. If the signed manifest is not returned within 45 days, an exception report shall be completed and filed with the Virginia Department of Environmental Quality. The exception report shall include:

1) A legible copy of the original manifest
2) A cover letter signed by the generator or authorized representative explaining the efforts taken to locate the hazardous waste and the results of those efforts and

3) For interstate shipments, additional copies of the exception report that can be forwarded by Virginia Department of Environmental Quality to other states.

Land Disposal Restrictions

Land Disposal Restrictions (LDR) are requirements that determine how a "restricted" hazardous waste is treated prior to its disposal in a permitted landfill. The Environmental Administrator has access to a list of hazardous wastes that have LDR.

In the event that LDR apply to a hazardous waste, the treatment facility shall be notified in writing of the appropriate treatment standards and any applicable prohibitions. The Environmental Administrator will decide if land disposal restrictions apply to a given hazardous waste. The notification shall include:

1) EPA hazardous waste number;
2) Corresponding treatment standards;
3) Manifest number associated with the shipment; and
4) Waste analysis data, if available.

The Environmental Site Coordinator or the Environmental Administrator will make written notifications to the applicable treatment facility.

Record-Keeping

Manifests, exception reports, and waste analysis data must be maintained on file for at least 3 years from the date the waste was shipped from the Site. Copies of Land Disposal Restrictions (LDR) notifications to treatment facilities and all other required information associated with the LDR must be maintained on file at the facility for at least 5 years.

5.03 UNIVERSAL WASTE MANAGEMENT

Universal wastes are subject to special management provisions intended to ease the regulatory burden and facilitate the recycling of such materials. Four types of waste are currently covered under the universal waste regulations;

- **Batteries** – most batteries are suitable for reuse or metals recycling
- **Pesticides** – stipulated as pesticides that are either recalled or collected in waste pesticide collection programs
- **Thermostats** – mercury containing thermostats
- **Mercury-containing Lamps –** fluorescent tubes, high pressure sodium lamps, mercury vapor lamps, metal halide lamp, and neon lamps

Although not specifically required by RCRA, these wastes should be managed while on site in the same manner as the more regulated hazardous wastes. Blue labels, inscribed with the words "Universal Waste" and a description on the contents, must be on each drum. DOT hazardous labels are also required. Two advantages of this characterization are that storage time can extend up to one year and the amount generated per month is not a part of hazardous waste generation tallies. The Environmental Administrator is solely authorized to determine if waste generated by the City is a "universal waste"

5.04 USED OIL MANAGEMENT

In an effort to encourage the recycling of used oil, the Used Oil Recycling Act was passed in 1980. This Act required the EPA to study the hazards posed by used oil and to develop management standards to protect human heath and the environment. In 1992, the EPA developed a more comprehensive recycling program and added management standards for facilities that handle used oil. The standards were codified in 40 CFR 279.

Used oil is characterized and defined by three criteria; origin, use, and contamination. First, it must be derived from crude oil or synthetic oil. Second, the oil must have been used as a lubricant, hydraulic fluid, heat transfer fluid, or other similar use. Finally, it must be contaminated by physical and chemical impurities as a result of such use. Chlorinated hydrocarbons and metal contamination occasionally occurs due to use and as a result of product additives or engine wear, but this contamination does not always necessitate a hazardous waste designation. Gear oils are notorious for containing chlorinated paraffins. The contamination by chlorinated cleaning compounds does produce a hazardous waste. The use of chlorinated compounds is prohibited in order to prevent cross contamination and maintain the used oil status.

The following is a list of management standards for used oil.

1) Store used oil in tanks and containers of good condition and free of leaks. Containers should be closed when not in use.
2) Clearly mark containers and tanks with the words "Used Oil." The word "Waste" has regulatory significance and should not be used with regard to oil.
3) Respond immediately to releases of used oil from their storage units. Clean drips and residue after each transfer.
4) Respond immediately to damaged or leaking equipment. Clean drips and residues resulting from maintenance.
5) Inspect and document inspections of storage containers on a weekly basis.

6) Perform outside analysis on an annual basis

The Environmental Administrator must approve any new used oil storage tanks prior to construction. An aggregate aboveground storage capacity of more than 1,320 gallons, or a total underground storage capacity of 42,000 gallons triggers special requirements and notifications.

6.0 AIR EMISSIONS

Air emissions are generated everyday by City operations. These emissions include, but are not limited to, vehicle exhausts, auxiliary generator exhaust, fumes from fueling vehicles, natural gas fired boiler exhausts, and fumes from hazardous waste storage containers. Vehicle and building air conditioning equipment contain chlorofluorocarbons (CFC's). Fifteen of these ozone-depleting substances were phased out in 1996 but much of the existing air conditioning equipment still contains these compounds. Vehicle or building air conditioner maintenance and repair require special consideration which are presented in Section 8.05.2 of this manual

Sources of air emissions are considered to fall under one of two categories: mobile sources or stationary sources.

- **Mobile Sources:** Sources of air emissions that are designed to move (not in a fixed position) as part of its normal function. Fleet vehicles, garbage trucks, lawn mowers, and fork trucks are examples of mobile sources operated by the City.

- **Stationary or Fixed Sources**: Sources of air emissions that are "fixed" at a given location. Boilers, natural gas heaters, wood-working shops, emergency and other large generators, welding shops and waste storage areas are examples of stationary sources operated by the City.

To reduce emissions from City vehicles and equipment, the City instituted an Engine and Equipment Idling Policy in July 2004. The purpose of the policy is not only to reduce vehicle emissions, but to conserve fuel which in turn saves money, and reduces engine/equipment 'wear and tear'.

6.01 MOBILE SOURCES - OPERATION

All mobile sources procured by the City are equipped with required emissions control devices supplied by the manufacturer. The Department procuring the mobile source is obligated to ensure that the proper emissions control devices are installed. Each Department and individual who operates and/or maintains the mobile source is responsible for ensuring that:

1) Factory installed emissions control devices are not removed or by-passed;
2) Emissions control devices are maintained, at a minimum, in accordance with the manufacturer's recommendations;
3) Only fuels specified by the manufacturer are used;
4) Malfunctioning emissions control devices are repaired as soon as feasible or the mobile source is taken out of service.

6.02 FIXED SOURCES – PERMITTING & OPERATION

The City operates various fixed sources that have been evaluated by the Environmental Administrator to determine applicable permitting requirements. The Environmental Administrator maintains a list of calculations used to determine the maximum controlled and uncontrolled emissions for each source and the rationale for classifying the source as either requiring a permit or not. Applicable permits for each facility are located at the facility. Copies are kept on file in the Environmental Administrator's office.

Prior to the installation of a "new fixed source," a permit to construct may have to be obtained. Therefore, no fixed equipment may be constructed or installed at any City location without the approval of the Environmental Administrator. It is the responsibility of the Department Manager to ensure that the Environmental Administrator is made aware of any plans to install or construct a new emissions source at the inception of the project.

In addition to air permitting requirements, the Environmental Administrator assists each facility in determining whether or not it is subject to other Federal and or state air regulatory requirements.

7.0 WASTEWATER

The City of Roanoke generates wastewater daily. All water that is used by the City that gets fouled from use is considered wastewater. Importantly, one must keep in mind that wastewater is ultimately returned to the receiving waters (i.e., rivers, creeks and streams) of the community and can negatively impact our drinking water and recreational water supplies. Wastewater of primary concern to City operations includes water that is used by the City for vehicle and equipment washing, sanitary services, and general cleaning plus storm water that contacts City facilities and operations.

7.01 SANITARY DISCHARGES

For the purposes of this manual, sanitary discharges include all wastewater discharges that ultimately flow to the Western Virginia Water Authority's Water

Pollution Control Plant (WPCP), excluding stormwater flows. This includes discharges from toilets, sinks, showers, wash basins, floor drains and all other drains that are connected to the sanitary sewer collection system. The only acceptable receiver of sanitary sewer discharges is the WPCP. The WPCP is permitted to receive and treat these discharges prior to discharging to the Roanoke River. Local pre-treatment regulations define what can and cannot be disposed of through the sanitary sewer system. As an employee, you should be aware of the following rules:

1. No chemicals may be disposed of by placing in a toilet, sink, washbasin or other connection to the sanitary sewer system. Departments are responsible for identifying activities where discharges to the sanitary sewer system are desirable, documenting the quantity and frequency of proposed discharges, and consulting with the Environmental Administrator if uncertain regarding an existing or proposed discharge.

2. Dilution water may not be added to sanitary sewer system discharges for the purpose of meeting pre-treatment regulations.

3. Employees that are unsure as to what can and cannot be placed in the sanitary sewer system must ask their supervisor.

7.01.1 Waste Water Treatment Plant

The Western Virginia Water Authority's WPCP is responsible for the treatment, analysis, and discharge of waste water received from the sanitary sewer, and the disposal of biosolids generated from the treatment. Additionally, the operation oversees and enforces a pretreatment program to prevent industrial discharges from causing interference or pass through, sludge contamination, or the plant to violate its permit.

Both the Virginia Department of Heath and Virginia Department of Environmental Quality are responsible for establishing and regulating discharge standards. By the issuance of a Virginia Pollutant Discharge Elimination System (VPDES) permit, effluent limits on the kinds and quantities of pollutants that can be discharged are established. In addition, the permit requires the establishment and adherence to three other programs. They are the Pretreatment Program, Toxic Management Program, and the Sludge Management Plan.

7.02 STORMWATER DISCHARGES

Stormwater discharges include all wastewater that results from rainfall contacting various natural and manmade surfaces that include, but are not limited to, parking lots, roads, machines and equipment, materials storage areas, buildings, vehicles, undisturbed ground, and disturbed soils.

Inevitably, a significant amount of stormwater ends up in the sanitary sewer system and is treated by the WPCP. Other stormwater flows are untreated and discharge directly to creeks, streams or rivers.

A given City facility can have either point source or non-point source discharges of stormwater. A point source discharge primarily refers to storm water that is collected or flows off site through a drainage ditch, rut, pipe, or storm drain. Non-point source discharge refers to stormwater that flows off-site via "sheet flow." Water flowing across a relatively flat paved parking lot is typical of "sheet flow." All employees should be aware of the following stormwater management rules:

1) No chemicals or any other solid wastes may be disposed of directly or indirectly through stormwater collection drains or other collection devices. Each department shall maintain a list of activities where direct discharges of stormwater to the environment may be desirable, including the quantity and frequency of proposed discharges. If a department is unclear as to what constitutes an acceptable discharge, it should consult with the Environmental Administrator prior to discharging.

2) All materials, including supplies and wastes, should be stored in such a way that they do not contribute to the pollution of stormwater. This includes such measures as storing materials inside, under sheds, on paved pads.

3) All stormwater collection devices should be protected from inadvertent discharges of chemicals, including gasoline, oil, paint, and other process materials. As an example, this means that an employee should not transfer gasoline from one tank to another directly over or near an exposed stormwater drain.

8.0 MATERIALS MANAGEMENT

Effectively managing the materials that are procured and used by the City is an important aspect of the City's environmental management system. Beyond solely evaluating materials based on their intended use, materials should be evaluated for their potential environmental impacts as well. For example, a given

material that would perform well may not be chosen because its use may create a hazardous waste. Another material may not result in a hazardous waste, but may increase the likelihood of soil contamination. The objective is to find a material that will do the job while minimizing the environmental risk posed by the use and/or disposal of the material.

In this section, the ordering of materials, receiving, proper storage, dispensing, and Material Safety Data Sheets (MSDS) are discussed.

8.01 ORDERING

Each department is responsible for determining the materials necessary to conduct operations. Each department's inventory of materials should be kept to a minimum quantity while maintaining a satisfactory amount to conduct operations. Prior to ordering a new material (a material not currently on the list of materials for that Department), the Department Manager is responsible for contacting the Environmental Administrator and obtaining authorization to continue with the procurement process. The proper sequence of events to order a material rests with the person creating the order and is as follows:

1) Review the current list of materials used by the Department to determine if the material you are interested in procuring is listed.

2) If the material is on the list, proceed with the standard procurement procedure currently in place. If the material is not on the list, proceed to Step #3.

3) Document the name of the chemical, CAS # (chemical abstract number used for identification), quantity needed, intended usage and proposed storage location. Obtain a Material Safety Data Sheet from the prospective supplier. Copy for your records and submit the original to the Environmental Administrator for his review.

4) The Environmental Administrator will review the information and respond to the requisitioner, either approving or rejecting the request. The Environmental Administrator shall document his reasons for rejecting the request. If the request is approved, proceed with Step #5. If not approved, re-evaluate alternate materials.

5) File the approved request in the department files. The Department Manager shall ensure that the material is added to the department's list of materials with a copy being forwarded

to the Environmental Administrator. All requests will be retained on file for 5 years.

6) Proceed with the standard procurement procedure currently in place.

8.02 RECEIVING

Each department shall ensure that employees that receive materials are properly trained. Upon receipt of the materials, the City employee signing for the materials must do the following:

1) Review the manifest and/or shipping papers to ensure that the materials are those ordered. If this is the first shipment of a material, the MSDS should accompany the shipment or be in route to the facility.

2) Inspect the packaging to ensure that it is not damaged or defective. Under normal circumstances, materials contained in defective packaging shall not be received.

3) Place the material in the designated storage area.

8.03 STORAGE

Each Department Manager shall ensure that proper storage areas are available for materials and supplies. The following requirements apply to materials storage areas:

1) Protective measures that will prevent spills of materials from contaminating the soil and/or entering stormwater drains. Protective measures include, but are not limited to dikes, berms, concrete pads, walls, drainless flooring, and enclosures.

2) Materials storage areas should be secure, preventing access to the public or other unauthorized individuals.

3) Materials storage areas should be inspected routinely.

8.04 DISPENSING

Each Department Manager shall ensure that materials are properly dispensed from storage. Proper dispensing includes:

1) Ensuring that a Material Safety Data Sheet (MSDS) is maintained on file for each material dispensed.

2) Documenting the employee that has been issued the material, including the quantity issued. In many cases, the supervisor may be the employee receiving the materials and distributing to employees under his direction.

Ensuring that a proper means of transporting the material to its intended location of use is available. Hazardous materials may only be transported off-site in accordance with Department of Transportation (DOT) regulations 49 CFR 171-180. If you have questions regarding DOT requirements, consult with the Environmental Administrator.

8.05 USAGE

All materials shall be used in a manner consistent with the manufacturer's recommendations. Certain products, such as pesticides, disinfectants and refrigerants require personal certifications or licenses before individuals can handle them. Each user, or supervisor of users, shall do the following prior to using a material:

1) Become familiar with the MSDS;

2) Review the MSDS information with employees under your direction;

3) Have spill response materials readily available in case of a spill;

4) Wear the appropriate Personal Protective Equipment (PPE) when handling or using the material. The appropriate PPE is defined for all materials used by the department. The Safety Specialist has assisted each department in defining required PPE.

8.05.1 Pesticides

The Federal, Insecticide, Fungicide and Rodenticide Act (FIFRA) is a comprehensive regulatory statute that addresses the sale, distribution, and labeling of pesticides, as well as the certification and training of pesticide applicators. The use of restricted pesticides should be avoided because of their increased toxicity and more stringent record keeping and reporting requirements

Employees of local, state, and federal governmental agencies must be certified as either commercial applicators not for hire or registered technicians; however, they are exempt from any certification fees. No employees can apply pesticides without proper certification. Department managers are responsible for maintaining copies of valid certifications for all applicable personnel.

8.05.2 Refrigerants

Repairing or maintaining of vehicle and building air conditioners includes adding, removing, and recycling chlorofluorocarbon (CFC) refrigerants. These activities are regulated under the Clean Air Act (CAA). The Act is designed to prevent ozone depletion by requiring the capture and recovery of used refrigerants, the use of certified recycling equipment, and the training and certification of all operators. No employees can repair or maintain CFC related air conditioners without proper certification. Department Managers are responsible for maintaining copies of valid certifications for all applicable personnel.

8.06 MATERIAL SAFETY DATA SHEETS (MSDS)

MSDS should be readily available for all materials used by a department as required by OSHA regulation (29 CFR 1910.1200 Hazard Communication). An MSDS is an important source of safety, health and environmental information for a material. The Department Manager is responsible for maintaining, at the facility accessible to the employees, the most current MSDS available. All MSDS should provide the following information about a material:

1) Material name as shown on the container label, including common name and Chemical Abstracts Service Number (CAS #);
2) Chemical composition;
3) Chemical and physical characteristics;
4) Physical hazards;
5) Health hazards, including primary exposure routes, permissible exposure limits, and carcinogenicity information;

6) Precautions for safe handling;

7) Appropriate engineering controls, work practices, or personal protective equipment (PPE);

8) Procedures for clean up of spills or leaks;

9) Emergency and first-aid procedures;

10) Date of the MSDS;

11) Name, address and phone number of the material manufacturer or responsible party who prepared or distributed the MSDS who can provide additional safety information, including emergency response procedures;

12) 24-Hour emergency response phone number.

9.0 REGULATORY REPORTING

There are statutory reporting requirements with timeframes that vary from 24 hours to every other year. The type and frequency of reports, certifications and notifications are embedded in the different acts or programs that govern the environment as a whole. The complex and encompassing nature of the regulations in the context of the City's diversified operations makes it difficult to provide a comprehensive matrix.

The Environmental Administrator maintains information on all regulatory reporting requirements applicable to City operations. The Environmental Administrator is responsible for making timely release notifications to the appropriate regulatory agencies. No other employee shall make such notification unless authorized by the Environmental Administrator or City Manager.

9.01 GENERAL REPORTING STANDARDS

In some circumstances, spills, releases, emissions or other discharges of pollutants to the environment ("releases") may trigger prompt regulatory reporting requirements. It is imperative that the City fulfills its regulatory reporting obligations. Regulatory reports must be accurate and made in a timely manner. Several reporting requirements that are applicable to all facilities are as follows:

1) Oil or gasoline that is spilled outside of a containment area (contacts unprotected ground) must be reported promptly to your immediate supervisor. The supervisor reports all spills of 25 gallons or more to the Environmental Administrator. The supervisor documents all spills of less than 25 gallons in a facility log book.

2) Any material spilled outside of its containment area at or in excess of its reportable quantity (RQ).

3) Any employee who discovers a release is responsible for notifying his or her supervisor immediately, unless making such notification would allow the extent or negative environmental impact of the release to increase. In the latter case, the notification shall be made as soon as possible after the situation is under control. Upon receiving such notification, the supervisor shall immediately report the release to the Environmental Administrator.

4) All permit conditions that are not met shall be immediately reported to the Environmental Administrator. Permit conditions include numerical limits and written requirements.

5) Any spill or release of any type or quantity that occurs outside of a designed containment area must be immediately reported to the Environmental Administrator or his pre-arranged designee by the first employee on-scene or the most senior ranking employee on scene. If spill or release below its RQ occurs after normal business hours, it may be reported promptly to the Environmental Administrator the next business day unless it may cause harm or imminent threat to human health or the environment, in which case it shall be reported immediately.

The Environmental Reporting Line, (540) 853-1674 provides for immediate notification via cell phone to the Environmental Administrator.

9.02 REPORTING of UNKNOWN WASTE

The City maintains and is responsible for public right-of-ways within the city limits, therefore the streets and sidewalks are considered City property. If unknown waste is discovered on City property, the employee(s) discovering the waste shall immediately contact his or her supervisor who will in turn contact the Environmental Administrator. The aforementioned procedure also applies to discoveries of unknowns encountered in routine operations such as utility line excavation and maintenance, building maintenance, park operation and maintenance, and the collection of solid waste.

Uncontrolled spills in danger of contacting the stormwater system or surface water, or that present a fire or explosion hazard are first reported to the City's Hazardous Materials Response Team (HAZMAT) directly by dialing 911 or direct radio contact to Fire/EMS.

The follow information is necessary:

1) Approximate quantity of waste discovered;
2) Container type;
3) Location;
4) Unusual odors; and
5) Any recognized environmental or safety hazards.

The employee shall not attempt to move the waste or open the waste container. The employee shall remain at a safe distance that results in no noticeable odors and no potential contact with the material until the HAZMAT Team arrives, at which point the employee(s) may leave the site after being debriefed by the officer in charge of the HAZMAT Team.

The Environmental Administrator will work with the HAZMAT Team to coordinate any sampling of the waste for the purpose of identification and disposal. If the waste is determined to be hazardous, the Environmental Administrator will contact the Department of Environmental Quality to obtain a provisional EPA I.D. number for shipment. The waste will be overpacked by the HAZMAT Team and moved to a secure area of the Public Works Service Center to await transport to a permitted Treatment, Storage and Disposal (TSD) facility. The Environmental Administrator will arrange for ultimate disposal.

9.03 REPORTING NON-COMPLIANCE

All environmental concerns, apparent incidents, or areas of non-compliance must be reported and rectified immediately. Employees, as a condition of employment, are required to provide prompt notification to their immediate supervisor who will in turn advise the department manager.

A second option of reporting non-compliance is available by phoning the Environmental Reporting Line at (540) 853-1674. This method offers an anonymous and discreet way to provide notice on a 24-hour basis to the Environmental Administrator, who in turn will investigate the incident along with the responsible Department Manager.

Non-compliance must never be a shortcut to operations. The ramifications and penalties are too high to be worth the risk.

10.0 REGULATORY INSPECTIONS

Any visit to a City of Roanoke facility by a Federal, state or local regulatory agency for the purpose of evaluating a department's operations or any aspect of

a Department's operations, including required record keeping, is considered a regulatory inspection for the purpose of this compliance manual.

Two types of regulatory inspections exist, announced and unannounced. All announced inspections should be communicated to the Environmental Administrator as soon as the targeted Department receives notification of the inspection. The Department Manager is responsible for promptly notifying the Environmental Administrator if a regulatory agency pays an unannounced visit to a facility.

The Department Manager shall request to delay the inspection until the Environmental Administrator can arrive on site, however if such a request is denied, all records must be furnished upon request, and be made available at all reasonable times for inspection. The Environmental Administrator should still be summoned so that he may assist in the inspection. The important thing is to be cooperative with the inspector or law enforcement official so that they can conduct their duties while respecting the rights of the City and its employees

In summary, a regulatory inspection, announced or unannounced, shall trigger the following events:

1) When the regulatory inspector shows up at the facility, the employee that initially communicates with the inspector shall ask him to identify the purpose of the inspection, and then have the inspector wait in an area normally used by visitors. The employee shall then notify the Department Manager.

2) As soon as he learns that an inspector is traveling to or arriving at the site, the Department Manager shall notify the Environmental Administrator. If the Environmental Administrator in unavailable, an appropriate substitute must be available. The Environmental Administrator is responsible for arranging to have substitutes available.

3) The Department Manager shall meet the regulatory inspector and request that the Environmental Administrator be present during the inspection. If the request is denied, the Department Manager should proceed with the inspection.

4) The Environmental Administrator shall notify the City Attorney if he deems it necessary and proceed to the site of the inspection.

5) Upon arrival at the site, the Environmental Administrator shall meet with the regulatory inspector and determine the scope of the inspection. The Environmental Administrator shall

document the inspection, including but not limited to the inspector(s) name(s), date of the inspection, scope, time, items reviewed, discussions and findings. If the inspector plans on taking photographs, the Environmental Administrator shall be prepared to take identical photos.

6) The Environmental Administrator shall accompany the inspector at all times and shall ensure that the inspector adheres to the scope of the inspection. Under no circumstances shall the inspector be allowed to walk around the facility unescorted.

7) Any employee questioned by the inspector shall tell the truth, but refrain from providing speculative (guessing) answers.

8) Every employee, including facility management, shall always be truthful and forthcoming in his or her responses to the inspector's questions. To avoid the miscommunication of information to a regulatory agency, employees should only answer questions asked of them regarding operations in which they are familiar.

9) After the inspection, the Environmental Administrator shall ask the inspector to review and discuss any findings or concerns that he may have. The Environmental Administrator shall not allow the inspector to take original facility documents ("originals") off site, including records or permits unless he has appropriate court documents. The Environmental Administrator shall review and approve all document copies that are requested by the inspector prior to their release and removal from the facility and he may consult with the City Attorney. The Environmental Administrator shall keep a record of what documents are copied and furnished to the inspector.

10) Once the inspector has left the site, the Environmental Administrator will provide a verbal summary of the inspection to the Assistant City Manager. Within 2 working days of the inspection, the Environmental Administrator shall provide a written summary report to the Assistant City Manager and Department Manager.

10.01 CRIMINAL SEARCH WARRANT

It is important that employees be able to recognize when a visit by the regulators is part of the regulatory inspection and when it is pursuant to a criminal search warrant. The easiest way to make the determination is to simply ask the regulator whether the visit is being made pursuant to a search warrant. If it is a search warrant notify the City Attorney's office immediately.

Each location should have a minimum of three to four trained persons to assist in the conduct of inspections and the very unlikely event of a search warrant. Be cooperative and provide clear and honest answers. The officials receive specialized training and should be mature persons of good judgment, even temper and discretion.

11.0 AUDITS

During the City's three-year probation period, an outside consulting firm conducted audits on an annual basis. This is in addition to the City's own internal auditing. At regular intervals, the Environmental Administrator shall audit each department's operations for environmental compliance. A detailed audit checklist will form the basis for each audit. The audit protocol is as follows:

1) The Environmental Administrator coordinates the exact date of the audit with the Department Manager responsible for the facility to be audited.

2) Designation of the audit team (at least the Environmental Administrator and one other person not from the facility being audited).

3) Issue a pre-audit questionnaire and checklist to each affected department.

4) Review the completed questionnaire prior to the audit.

5) Conduct the audit.

6) Prepare a report listing the audit findings, including a priority for addressing any issues to the Department Manager and Assistant City Manager. The audit report is only issued to the Assistant City Manager after the Department Manager reviews it.

7) Establish a schedule for following up on audit findings to ensure their resolution.

8) Document that all audit findings have been addressed.

9) Issue an audit closure letter to the City Manager with a copy to the City Attorney.

END OF COMPLIANCE MANUAL